



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/748,741	12/26/2000	John O. Limb	1875.0830001	4263
26111	7590	04/27/2005	EXAMINER	
STERNE, KESSLER, GOLDSTEIN & FOX PLLC 1100 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			JUNTIMA, NITTAYA	
			ART UNIT	PAPER NUMBER
			2663	

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/748,741	Applicant(s) LIMB ET AL.	
	Examiner Nittaya Juntima	Art Unit 2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 5 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-11 and 13-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed on 11/15/2004.
2. The objections to the specification and claims are withdrawn in view of applicant's amendment.
3. Claims 5 and 12 have been cancelled as per applicant's amendment.
4. Claims 1-4, 6-11, and 13-25 remain rejected under 35 U.S.C 103 (a).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1-4, 8-11, 15-16, and 20-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Grimwood et al. ("Grimwood") (USPN 6,459,703 B1) in view of Shimizu (USPN 4,926,420).

Per **claim 1**, as shown in Fig. 1, Grimwood teaches *a central controller* (CMTS 10, col. 7, ll 19-col. 8, ll 1-2), *a first group of remote devices* (SCDMA modems 30 and 32, col. 9, ll 31-34), *a first protocol* (SCDMA, col. 9, ll 31-34), *a second group of remote devices* (DOCSIS 1.0 TDMA modems 22 and 24, col. 9, ll 23-27), *a second protocol* (DOCSIS 1.0 TDMA, col. 9, ll 23-27), and a method comprising:

Assigning *one or more time slots* (minislots) on the same upstream channel (an upstream channel, Fig. 3) during which first group and second groups of remote devices may transmit

Art Unit: 2663

information to the central controller (CMTS 10, Fig. 1) (MAP messages generated by the CMTS are used in assigning mini slot numbers to TDMA and SCDMA modems such that there is no overlap in time between the TDMA and SCDMA regions on the same physical channel, col. 7, ll 49-66, col. 11, ll 35-40, 46-57, and col. 12, ll 15-17, 24-26, 38-42, and 61-66).

Identifying transmissions (bursts) from the first and second groups of remote devices based on said time slot assignments (minislots) (since (i) a table of SIDs with mapping minislots is built for each logical channel sharing a physical channel, col. 10, ll 45-col. 11, ll 17, and (ii) MAP messages containing SIDs and mini slot assignments are generated for each TDMA and SCDMA logical channel by the CMTS in response to bandwidth requests submitted by the respective modems, col. 7, ll 49-66 and col. 9, ll 47-51, and Figs. 3 and 4, and (iii) the respective modems may transmit in their assigned mini slots, col. 13, ll 7-53, Fig. 4, therefore, the CMTS must identify transmissions from the TDMA and SCDMA modems based on the minislot assignments).

However, Grimwood fails to teach routing transmission from the first group of remote devices to a first processor operating in accordance with the first protocol within the central controller, and routing transmissions from the second group of remote devices to a second processor in accordance with the second protocol within the central controller as recited in the claim.

However, in an analogous art shown in Figs. 5 and 10, Shimizu teaches routing transmissions (packet signals) from a first group of remote devices (inherent devices in LAN 31) to a first processor (LLC data processor 51) operating in accordance with the first protocol (LAN) within the central controller (TE 33) and routing transmissions (packet signals) from the

Art Unit: 2663

second group of remote devices (inherent devices in ISDN 32) to a second processor (ISDN data processor 52) in accordance with the second protocol (ISDN) within the central controller (TE 33). See col. 7, ll 10-15, 19-22, and 35-37, and col. 8, ll 56-64.

Given the teaching of Shimizu, it would have been obvious to one skilled in the art to include routing transmission from the first group of remote devices to a first processor operating in accordance with the first protocol within the central controller and routing transmission from the second group of remote devices to a second processor in accordance with the second protocol within the central controller into the teaching of Grimwood as recited in the claim. The suggestion/motivation to do so would have been to process the transmissions of the integrated system at a corresponding one of the processors as taught by Shimizu (Abstract, ll 12-19).

Per **claims 2 and 9**, Grimwood teaches embedding *a first identifier* (SIDs 96-150) in *transmissions* (bandwidth requests) from *the first group of remote devices* (SCDMA modems 30 and 32, col. 9, ll 31-34) and embedding *a second identifier* (SIDs 1-75) in *transmissions* (bandwidth requests) from *the second group of remote devices* (DOCSIS 1.0 TDMA modems 22 and 24, col. 9, ll 23-27), wherein transmissions from the first and second groups of devices are identified in accordance with the first and second identifiers (col. 7, ll 49-66, col. 9, ll 47-58, and col. 13, ll 7-53 and Fig. 4).

Per **claims 3, 10, and 21**, Grimwood teaches that the transmissions (bandwidth requests) from the first and second groups of remote devices comprise bandwidth requests (col. 9, ll 47-58).

However, Grimwood fails to explicitly teach that the bandwidth requests are transmitted in a request contention area.

The examiner notice is taken that the CMTS normally allocates some of the mini slots on the upstream channel as contention slots (a request contention area) for transmission of bandwidth requests. Therefore, it would have been obvious to one skilled in the art to include transmitting the bandwidth requests in a request contention area. The suggestion/motivation to do would have been to allow any cable modem to transmit its bandwidth requirement to the CMTS.

Per **claims 4 and 11**, Grimwood teaches transmitting *bandwidth grants* (grants in MAP message) to the first and second groups of remote devices in response to requests for bandwidth (col. 8, ll 58-66 and col. 12, ll 15-17, 38-42, and 61-66 and Fig. 4).

Claim 8 is a method claim containing similar limitations to method claim 1 and is rejected under the same reason set forth in the rejection of claim 1 with the addition that a cable modem termination system, cable modems, a proprietary protocol, and DOCSIS protocol in claim 8 correspond to a central controller, remote devices, a first protocol (see also col. 14, ll 63-col. 15, ll 3), and a second protocol in claim 1, respectively.

Per **claim 15**, as shown in Fig. 1, Grimwood teaches *a first group of remote devices* (SCDMA modems 30 and 32, col. 9, ll 31-34), *a first protocol* (SCDMA, col. 9, ll 31-34), *a local host* (CMTS 10, col. 7, ll 19-col. 8, ll 1-2), *a second group of remote devices* (DOCSIS 1.0 TDMA modems 22 and 24, col. 9, ll 23-27), *a second protocol* (DOCSIS 1.0 TDMA, col. 9, ll 23-27). Grimwood further teaches that local host (CMTS 10, Fig. 1) assigns one or more time slots (minislots) on the same upstream channel (a physical upstream channel, Fig. 3) during which the first and second groups of remote devices may transmit information to said local host (MAP messages generated by the CMTS are used in assigning mini slot numbers to TDMA and

Art Unit: 2663

SCDMA modems such that there is no overlap in time between the TDMA and SCDMA regions on the same physical channel, col. 7, ll 49-66, col. 11, ll 35-40, 46-57, and col. 12, ll 15-17, 24-26, 38-42, and 61-66), and **a processor** for identifying transmissions (bursts) from the first and second groups of remote devices based on said time slot assignments (minislots) (since (i) a table of SIDs with mapping minislots is built for each logical channel sharing a physical channel, col. 10, ll 45-col. 11, ll 17, and (ii) MAP messages containing SIDs and minislot assignments are generated for each TDMA and SCDMA logical channel by the CMTS in response to bandwidth requests submitted by the respective modems, col. 7, ll 49-66 and col. 9, ll 47-51, and Figs. 3 and 4, and (iii) the respective modems may transmit in their assigned mini slots, col. 13, ll 7-53, Fig. 4, therefore, the CMTS must identify transmissions from the TDMA and SCDMA modems based on the minislot assignments and a processor that performs such identifying function).

Grimwood fails to teach that the protocol processor also routes transmissions from the first group of remote devices to a first processor operating in accordance with the first protocol within the central controller and routing transmission from the second group of remote devices to a second processor in accordance with the second protocol within the central controller as recited in the claim.

However, in an analogous art shown in Figs. 5 and 10, Shimizu teaches a protocol processor (FID discriminator 59 and SA detector 60, collectively, for identifying packet signals from LAN and ISDN devices, col. 8, ll 28-51) that routes transmissions (packet signals) from a first group of remote devices (inherent devices in LAN 31) to a first processor (LLC data processor 51) operating in accordance with the first protocol (LAN) within the central controller (TE 33) and routing transmissions (packet signals) from the second group of remote devices

Art Unit: 2663

(inherent devices in ISDN 32) to a second processor (ISDN data processor 52) in accordance with the second protocol (ISDN) within the central controller (TE 33). See col. 7, ll 10-15, 19-22, and 35-37, and col. 8, ll 56-64.

Given the teaching of Shimizu, it would have been obvious to one skilled in the art to modify the teaching of Grimwood such that the protocol processor would route transmission from the first group of remote devices to a first processor operating in accordance with the first protocol within the central controller and route transmission from the second group of remote devices to a second processor in accordance with the second protocol within the central controller as recited in the claim. The suggestion/motivation to do so would have been to process the transmissions of the integrated system at a corresponding one of the processors as taught by Shimizu (Abstract, ll 12-19).

Per **claims 16 and 22**, Grimwood teaches that the local host (CMTS 10 in Fig. 1) further comprises a central processor for scheduling transmissions from the first and second groups of remote devices (since bandwidth is allocated and MAP messages are generated, col. 7, ll 36-66 and col. 9, ll 47-51, therefore, CMTS must have a central processor for processing scheduling and generating MAP messages used for minislot assignment for each modem).

Claim 20 is a cable television system claim containing similar limitations to system claim 15 and is rejected under the same reason set forth in the rejection of claim 15 with the addition that cable modems, a cable modem termination system, a proprietary protocol, DOCSIS protocol in claim 15 correspond to remote devices, a local host, and a first protocol, and second protocol in claim 15, respectively.

Art Unit: 2663

7. **Claims 6-7, 13-14, 17-19, and 23-25** are rejected under 35 U.S.C. 103(a) as being unpatentable over Grimwood et al. ("Grimwood") (USPN 6,459,703 B1) in view of Shimizu (USPN 4,926,420), and further in view of Vogel et al. ("Vogel") (USPN 6,751,230 B1).

Per **claims 6 and 13**, the combined teaching of Grimwood and Shimizu fails to teach creating a first multicast group and a second multicast group, and transmitting groups messages from the central controller to the first and second groups of remote devices in accordance with the first and second multicast groups.

As shown in Fig. 1, Vogel teaches creating *a first multicast group* comprising a first group of remote devices (multicast group with modified MAC multicast address having multiple modems 28 assigned to, col. 5, ll 42-52, 65-col. 6, ll 1-9), creating *a second multicast group* comprising a second group of remote devices (multicast group with the MAC multicast address in DOCSIS compliant form having multiple modems 28 assigned to, col. 5, ll 42-45, 60-65), and transmitting group messages from a central controller (CMTS 30) to the first and second groups of devices in accordance with the first and second multicast groups (col. 6, ll 14-29).

Given the teaching of Vogel, it would have been obvious to modify the combined teaching of Grimwood and Shimizu to incorporate creating a first multicast group and a second multicast group, and transmitting groups messages from the central controller to the first and second groups of remote devices in accordance with the first and second multicast groups. The suggestion/motivation to do so would have been to enable the central controller (CMTS) to communicate with a particular group of devices by sending only a single targeted message instead of large number of unicast messages as taught by Vogel (col. 6, ll 48-58).

Art Unit: 2663

Per **claims 7 and 14**, Grimwood fails to teach (i) receiving communications addressed for the first and second groups of devices, (ii) routing communications addressed for the first and second groups to the first processor and second processor, respectively, within a central controller, and (iii) transmitting the processed communications to the addressed remote devices.

Regarding (ii) as explained in claims 1 and 8, in an analogous art, Shimizu teaches routing communications (packet signals) for the first (devices in LAN 31) and second (device in ISDN 32) groups to the first processor (51, Fig. 10) and second processor (52, Fig. 10), respectively, within a central controller (TE33, Figs. 5 and 10) (col. 6, ll 15-21, col. 8, ll 22-26 and 40-51).

Regarding (i) and (iii), Vogel teach (i) receiving communication addressed for a remote device (data from computer 10 in Fig. 1 must be addressed for corresponding modem 28 in order to be transmitted by the CMTS 30 on the downstream direction to CPE 14, col. 1, ll 63-col. 2, ll 1, 39-51, and col. 5, ll 60-65) and transmitting a processed communication to addressed remote devices (modulated data is transmitted to modems 28, col. 1, ll 63- col. 2, ll 1, 39-51, and col. 5, ll 60-65).

Given the teaching of Vogel, it would have been obvious to one skilled in the art to modify the teaching of combined teaching of Grimwood and Shimizu to incorporate (i) and (iii) such that the steps of receiving communications addressed for the first and second groups of devices, routing communications addressed for the first and second groups to the first processor and second processor, respectively, within a central controller, and transmitting the processed communications to the addressed remote devices would be included as recited in the claim. The suggestion/motivation to do so would have been to provide transmission in the downstream

Art Unit: 2663

direction to the remote devices connected to the network as taught by Vogel (col. 1, ll 63-col. 2, ll 1).

Per **claims 17-18, and 23-25**, the combined teaching of Grimwood et al. and Shimizu fails to teach an upstream demodulator and a downstream modulator.

As shown in Fig. 1, Vogel teaches an upstream demodulator (a demodulation circuit DEMOD) and a downstream modulator (a modulation circuit MOD) (col. 1, ll 63-col. 2, ll 1-8).

Given the teaching of Vogel, it would have been obvious to one skilled in the art to include an upstream demodulator and a downstream modulator into the combined teaching of Grimwood and Shimizu. The suggestion/motivation to do so would have been to provide an appropriate demodulation and modulation to the data transmitted upstream and downstream to/from the local host (CMTS) as taught by Vogel (col. 1, ll 63-col. 2, ll 1-8).

Per **claim 19**, Grimwood teaches embedding *service identifiers* (SIDs 76-150) in each *upstream bandwidth requests* (bandwidth requests), *a first identifier* (SIDs 76-150), *a second identifier* (SIDs 1-75) (col. 8, ll 58-66, col. 9, ll 23-34 and 55-58, and col. 12, ll 15-17, and Fig. 4).

However, the combined teaching of Grimwood and Shimizu does not teach that each of the remote devices comprises a media access controller.

Vogel teaches that each of the remote devices (modems 28 in Fig. 1) comprises a media access controller (a MAC controller must be included to filter the MAC address, col. 2, ll 39-42).

Therefore, it would have been obvious to one skilled in the art to include in each of the remote devices a media access controller as recited in the claim. The motivation/suggestion to

Art Unit: 2663

do so would have been to enable the remote devices to match the MAC destination address against addresses stored in them as taught by Vogel (col. 2, ll 39-42 and 46-49).

Response to Arguments

8. Applicant's arguments filed 11/15/2004 have been fully considered but they are not persuasive.

A. In the remarks regarding claims 1, 8, 15, and 20, the applicant argues that Grimwood does not teach or suggest (a) assigning one or more time slots on the same upstream channel and (b) identifying transmissions from the modems based on the time slot assignment. However, the applicant agrees that Grimwood describes assigning slots on an upstream channel to control when each modem transmits to the CMTS.

In response, regarding (a), Grimwood clearly teaches assigning one or more time slots (minislots) on *the same upstream channel* (an upstream channel, Fig. 3) during which first group and second groups of remote devices may transmit information to the central controller (CMTS 10, Fig. 1). MAP messages generated by the CMTS are used in assigning minislots numbers to TDMA and SCDMA modems such that there is no overlap in time between the TDMA and SCDMA regions on the same physical channel, col. 7, ll 49-66, col. 11, ll 35-40, 46-57, and col. 12, ll 15-17, 24-26, 38-42, and 61-66 “Fig. 3 shows how the SCDMA and TDMA regions of the two logical channels sharing *a single physical channel* coexist by not overlapping in time,” col. 11, ll 46-48.

Art Unit: 2663

Regarding (b), the step of identifying transmissions (bursts) from the first and second groups of remote devices based on said time slot assignments (minislots) must be included in the teaching of Grimwood because:

(i) *a table of SIDs with mapping minislots* built for each logical channel sharing a physical channel, col. 10, ll 45-col. 11, ll 17,

(ii) using the table, MAP messages containing *SIDs and minislot assignments* are then generated for each TDMA and SCDMA logical channel by the CMTS in response to bandwidth requests submitted by the respective modems, col. 7, ll 49-66 and col. 9, ll 47-51, and Figs. 3 and 4, and

(iii) the respective modems transmit in their assigned minislots, col. 13, ll 7-53, Fig. 4, therefore, the CMTS must identify transmissions from the TDMA and SCDMA modems based on the minislot assignments).

In other words, the minislot numbers are assigned to different TDMA and SCDMA modems, therefore, the CMTS must identify the type of bursts, e.g. TDMA or SCDMA, based on the assigned minislot numbers of a physical upstream channel.

Further the Examiner pointed out in the previous Office action why it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the teaching of Shimizu into the teaching of Grimwood to include routing transmissions from the first and second groups of remote devices to a first processor with the first protocol and second processor with the second protocol, respectively, in order to process the transmissions of the integrated system at a corresponding one of the processors as taught by Shimizu (Abstract, ll 12-19). Applicant failed to point out the error in the motivation in the rejection.

Art Unit: 2663

With respect to the explanations above, the rejection of claims 1, 8, 15, and 20 and their dependent claims is, therefore, maintained.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nittaya Juntima whose telephone number is 571-272-3120. The examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2663

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima
April 20, 2005

N

Ricky Ngo
RICKY NGO
PRIMARY EXAMINER

4/22/05